



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,280	03/08/2001	Michael R. Franceschini	RTN-098AUS	6871
22494	7590	12/12/2005	EXAMINER CORRIELUS, JEAN B	
DALY, CROWLEY, MOFFORD & DURKEE, LLP SUITE 301A 354A TURNPIKE STREET CANTON, MA 02021-2714			ART UNIT 2637	PAPER NUMBER

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/802,280

Applicant(s)

FRANCESCHINI ET AL.

Examiner

Jean B Corrielus

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 10 and 12-15 is/are pending in the application.
- 4a) Of the above claim(s) is/are withdrawn from consideration.
- 5) ☐ Claim(s) is/are allowed.
- 6) ☒ Claim(s) 1-6, 10 and 12-15 is/are rejected.
- 7) ☐ Claim(s) is/are objected to.
- 8) ☐ Claim(s) are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date .
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. .
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Allowable Subject Matter

1. The indicated allowability to the claims 13-15 is withdrawn in view of Roberts et al, US patent No. 6,577,670 and Rakib et al US patent No. 6,426,983.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Secord et al US Patent No. 6,373,831 in view of Betts US Patent No. 6,668,023.

Secord et al discloses spread spectrum RF communication system comprising a FEC encoder 10 to encode digital data to provide a plurality of code symbols (symbol groups) see col. 4, line 33; an interleaver 20 to map each one of the plurality of code symbols (symbol groups) into a corresponding one of a plurality of N carriers (coherent subbands); a Walsh subband encoder 50 to encode each one of the plurality of N carriers (coherent subbands). However, Secord et al does not explicitly teach that "each symbol block is segmented into a plurality of symbols with each one of the plurality of symbols grouped into sets of symbols and each set of symbols is mapped to one of the plurality of coherent subbands". Betts teaches an interleaver (fig. 5)

configured to map each one of the plurality of symbol blocks into a plurality of coherent subbands wherein "each symbol block is segmented into a plurality of symbols see content of register 42 with each one of the plurality of symbols grouped into sets of symbols see signal on output line 51. It would have been obvious to one skill in the art to incorporate such a teaching in Secord et al in order to lower the peak signal power as taught by Betts see col. 7, lines 34-36. In addition, note that by modifying Secord as suggested by Betts, the interleaver would have been configured to map each set of symbols to one of the plurality of coherent subbands.

As per claim 2, Secord teaches that the encoder is an RS encoder see fig. 7, element 10.

As per claim 3, the encoder is a Turbo encoder. See col. 3, lines 63-65

As per claim 4, the encoder is a convolutional encoder. See col. 3, lines 63-65.

As per claim 5, the device further comprises a spreader (transmission security device) to spread (encrypt) each one of the Walsh encoded code symbols (symbol groups (see the drawing).

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Secord et al in view of Betts and further in view of Steele US Patent No. 4,393,276.

As applied to claim 1 above, Secord and Betts disclose every feature of the claimed invention but do not specifically disclose that an IFFT is coupled to the security device (spreader). Steele discloses an IFFT 16 is coupled to the security device 14. Given that fact, it would have been obvious to one skill in the art to incorporate such a

teaching in Secord et al and Betts et al so as to convert the signal to a time domain representation suitable for transmission to a distant receiver such as a CDMA receiver.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Secord in view of Betts et al and further in view of Huang et al US Patent No. 6,519,731.

Secord et al discloses spread spectrum RF communication system comprising a FEC encoder 10 (fig. 7) to encode digital data to provide a plurality of code symbols (symbol groups) see col. 4, line 33; an interleaver 20 to map each one of the plurality of code symbols (symbol groups) into a corresponding one of a plurality of N carriers (coherent subbands); a Walsh subband encoder 50 to encode each one of the plurality of N carriers (coherent subbands). However, Secord does not teach or fairly suggest that the further steps of forming data stream includes a plurality of packets and embedding each data packet into a physical layer by adding a header, and CRC information to each packet. It also fails to teach that the Walsh code is a low rate Walsh code. In addition, Secord does not explicitly teach that "each symbol block is segmented into a plurality of symbols with each one of the plurality of symbols grouped into sets of symbols and each set of symbols is mapped to one of the plurality of coherent subbands". However, packetizing a data information and adding a header and CRC information to each packet are old and well known in the art. For instance, Huang et al discloses, fig. 2 the further limitations of packetizing a data information and adding a header and CRC information to each packet see fig. 2 and col. 3, lines 27-45. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in

Secord in order to ensure that data is sent in block rather than a bit by bit basis so as to enhance transmission time in addition the occurrence of error in the received would have been kept at minimum. In addition, it would have been obvious to one skill in the art to use low rate Walsh code in order to be able to low rate signal such as voice signal. In addition, Betts teaches an interleaver (fig. 5) configured to map each one of the plurality of symbol blocks into a plurality of coherent subbands wherein "each symbol block is segmented into a plurality of symbols see content of register 42 with each one of the plurality of symbols grouped into sets of symbols see signal on output line 51. It would have been obvious to one skill in the art to incorporate such a teaching in Secord et al in order to lower the peak signal power as taught by Betts see col. 7, lines 34-36. In addition, note that by modifying Secord as suggested by Betts, the interleaver would have been configured to map each set of symbols to one of the plurality of coherent subbands.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Secord in view of Roberts US Patent No. 6,577,670.

Secord et al discloses spread spectrum RF communication system comprising a Reed Solomon FEC encoder 10 (fig. 7) to encode digital data to provide a plurality of code symbols (symbol groups) see col. 4, line 33; an interleaver 20 to map each one of the plurality of code symbols (symbol groups) into a corresponding one of a plurality of N carriers (coherent subbands); a Walsh subband encoder 50 to encode each one of

the plurality of N carriers (coherent subbands). However, it fails to teach a subband filter to excise a frequency subband to prevent interference.

Roberts teaches a filter¹⁴ for excising subchannels (subband) 15 and 20 to avoid interference between system 10 and 20. Given that fact, it would have been obvious to one skill in the art to incorporate a filter in Secord in order to minimize/prevent signal interference.

7. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Secord in view of Roberts US Patent No. 6,577,670 and further in view of Rakib et al US patent No. 6,426,983.

As per claim 14, as applied to claim 13 above, Secord and Roberts teaches every feature of the claimed invention but does not explicitly teach that a corresponding subband filter is used in the receiver to excise a frequency subband as in the transmitter. Rakid teaches a subband filter at the receiver to excise (erase) bin (subband) infected by interfering signal see summary of the invention. Given that, it would have been obvious to one skill in the art to modify Secord and Roberts by inserting a corresponding subband filter in the receiver in order to remove interference signal so as to improve signal detection.

As per claim 15, it would have been obvious to one skill in the art to select a different mapping in the receiver and the transmitter that avoid mapping symbols into excised subbands because if data were allowed to be mapped in the excised channel (subband) see for instance the spectrum fig. 4 of Roberts signal lost would have

resulted since the signal would have been included in a removed expect rum or non-existent subband.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Secord in view of Roberts US Patent No. 6,577,670 and further in view of Steele US Patent No. 4,393,276.

As applied to claim 13 above, Secord and Roberts disclose every feature of the claimed invention but does not specifically discloses that an IFFT is coupled to the security device (spreader). Steele discloses an IFFT 16 is coupled to the security device 14. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Secord et al and Roberts so as to convert the signal to a time domain representation suitable for transmission to a distant receiver such as a CDMA receiver.

Response to Arguments


9. Applicant's arguments with respect to claims 1-6 and 10 have been considered but are moot in view of the new ground(s) of rejection. The claim objection has been withdrawn.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Maxi-Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2637

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jean B Corrielus
Primary Examiner
Art Unit 2637

12-4-05